



The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group 180 Art Unit 1807.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention."

The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an enabling disclosure.

Claims 31-44 are directed to electrophoretic analysis of the products of sequencing reactions. These claims are drawn to the use of a chromophore to detect products of the sequencing reactions; however, it is not clear how one of ordinary skill in the art would sequence without having at least four different chromophores, at least one for each of the different bases. If all of the bases have the same chromophore, or if each chromophore has an emission spectrum which is identical or substantially identical, it is not clear how one would analyze the products to obtain sequence information.

Applicants claim methods for sequencing nucleic acids but only provide methods to sequence DNA. Applicants have not set forth a method to sequence RNA. It would require undue experimentation by one of ordinary skill in the art to determine how to sequence RNA's and applicant has not provided any guidance in this direction.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

by Maxim and Gilbert and Sanger for the purpose of utilizing non-hazardous material in the laboratory.

Claims 31-44 are rejected under 35 U.S.C. 103 as being unpatentable over Kaplan et al. and applicants disclosure of the prior art methods of Maxim and Gilbert and Sanger described in the specification (e.g. see page 3) in view of Khanna et al. and Ward et al.

Kaplan et al. teach the separation of the samples by gel electrophoresis and detection of separated material by ultraviolet transmitted material. See column 3, lines 5-10. The disclosure also also recites the Maxim and Gilbert and Sanger methods in which radiolabeled oligonucleotide samples are separated by gel electrophoresis for the purpose of sequencing DNA. Khanna et al. disclose that fluorescent dye molecules may be attached to oligonucleotides. See column 21, lines 48-51. It is well known in the art and a matter of common knowledge that radioactive materials have serious limitations and drawbacks associated with their use. This is also taught by Ward et al. See column 1, lines 10-39. One of ordinary skill in the art would have been motivated to use a nonradioactive element to avoid these serious limitations and drawbacks.

It would have been obvious for one skilled in the art to substitute fluorescent oligonucleotide tagged dyes as taught by Khanna et al. in DNA sequencing experiments for radioactive phosphate labels as taught by Maxim and Gilbert and Sanger for the purpose of utilizing non-hazardous material in the laboratory.

Claims 15-22 are allowable as was stated in several previous Office Actions.

An inquiry concerning this communication should be directed to Scott A. Chambers, Ph.D. at telephone number 703-308-3885. Only the Ward et al. reference (filing date of April 17, 1981) has been included in this Office Action. All other references have been provided in previous Office Actions.

Papers related to this application may be submitted to Group 180 by facsimile transmission. Papers should be faxed to Group 180 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform

prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 31-35 are rejected under 35 U.S.C. 103 as being unpatentable over Kaplan et al. and applicants disclosure of the prior art methods of Maxim and Gilbert and Sanger described in the specification (e.g. see page 3) in view of Khanna et al. and Ward et al.

Kaplan et al. teach the separation of the samples by gel electrophoresis and detection of separated material by ultraviolet transmitted material. See column 3, lines 5-10. The disclosure also also recites the Maxim and Gilbert and Sanger methods in which radiolabeled oligonucleotide samples are separated by gel electrophoresis for the purpose of sequencing DNA. Khanna et al. disclose that fluorescent dye molecules may be attached to oligonucleotides. See column 21, lines 48-51. It is well known in the art and a matter of common knowledge that radioactive materials have serious limitations and drawbacks associated with their use. This is also taught by Ward et al. See column 1, lines 10-39. One of ordinary skill in the art would have been motivated to use a nonradioactive element to avoid these serious limitations and drawbacks.

It would have been obvious to one of ordinary skill in the art to substitute fluorescent oligonucleotide tags in a detection system described by Kaplan et al. Thus applicants invention would have been prima facie obvious at the time of the invention to one of ordinary skill in the art.

Examiner notes that applicants presently claimed invention is not limited to the use of the fluorescent compounds to actually sequence nucleic acids. If applicants were to greatly narrow the claims to only cover using these fragments to gain sequencing information then the rejection would need to add: It would have been obvious for one skilled in the art to substitute fluorescent oligonucleotide tagged dyes as taught by Khanna et al. in DNA sequencing experiments for radioactive phosphate labels as taught

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with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Fax Center number is (703) 308-4227.



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**Art Unit 1807**